|   | u | $u_7$ | $u_{22}$ | $u_7 \Rightarrow u_{22} \Rightarrow u$ | $u_7$ ? $u_{22}$ : $u$ |
|---|---|-------|----------|--|------------------------|
|   | 0 | 0     | 0        | 1                                      | 0                      |
|   | 1 | 0     | 0        | 1                                      | 1                      |
|   | 0 | 1     | 0        | 1                                      | 0                      |
| Ī | 1 | 1     | 0        | 1                                      | 0                      |
|   | 0 | 0     | 1        | 1                                      | 0                      |
| Ī | 1 | 0     | 1        | 1                                      | 1                      |
|   | 0 | 1     | 1        | 0                                      | 1                      |
| ſ | 1 | 1     | 1        | 1                                      | 1                      |

| A | B | $A \oplus B$ | $A \wedge B$ |
|---|---|--------------|--------------|
| 0 | 0 | 0            | 0            |
| 1 | 0 | 1            | 0            |
| 0 | 1 | 1            | 0            |
| 1 | 1 | 0            | 1            |

| B | A | $B \wedge A$ | $B \lor A$ | $A \Rightarrow B$ |
|---|---|--------------|------------|-------------------|
| 0 | 0 | 0            | 0          | 1                 |
| 1 | 0 | 0            | 1          | 1                 |
| 0 | 1 | 0            | 1          | 0                 |
| 1 | 1 | 1            | 1          | 1                 |

| p | q | $p \Rightarrow q$ | $\neg p \Rightarrow (q \Leftrightarrow p)$ | $p \lor q$ | $\neg p \oplus q$ |
|---|---|-------------------|--|------------|-------------------|
| 0 | 0 | 1                 | 1  | 0          | 1                 |
| 1 | 0 | 0                 | 1  | 1          | 0                 |
| 0 | 1 | 1                 | 0  | 1          | 0                 |
| 1 | 1 | 1                 | 1  | 1          | 1                 |

| a | b | $a \wedge b$ |
|---|---|--------------|
| b | b | b            |
| a | b | b            |
| b | a | b            |
| a | a | a            |

| $\boldsymbol{A}$ | B | $A \rightarrow B$ |
|------------------|---|-------------------|
| 0                | 0 | 1                 |
| 1                | 0 | 0                 |
| 0                | 1 | 1                 |
| 1                | 1 | 1                 |

| p | $p \Rightarrow p$ | $(p \Rightarrow p) \Rightarrow p$ | $p \Rightarrow (p \Rightarrow p)$ |
|---|-------------------|-----------------------------------|-----------------------------------|
| 0 | 1                 | 0                                 | 1                                 |
| 1 | 1                 | 1                                 | 1                                 |

| p | q | r | $q \rightarrow r$ | $(q \to r) \land (p \lor r)$ | $p \lor r$ | $p \rightarrow q$ | $(p \to q) \to r$ |
|---|---|---|-------------------|------------------------------|------------|-------------------|-------------------|
| F | F | F | T                 | F                            | F          | T                 | F                 |
| F | F | T | T                 | T                            | T          | T                 | T                 |
| F | T | F | F                 | F                            | F          | T                 | F                 |
| F | T | T | T                 | T                            | T          | T                 | T                 |
| T | F | F | T                 | T                            | T          | F                 | T                 |
| T | F | T | T                 | T                            | T          | F                 | T                 |
| T | T | F | F                 | F                            | T          | T                 | F                 |
| T | T | T | T                 | T                            | T          | T                 | T                 |

| a  | b  | $a \wedge b$ |
|----|----|--------------|
| \$ | \$ | \$           |
| \$ | X  |              |
| X  | \$ | X            |
| X  | X  |              |

| p              | q | r | $p \lor q$ | $q \rightarrow r$ | $(p \vee q) \to (q \to r)$ | $\neg (q \to r)$ | $p \rightarrow r$ | $\neg (q \to r) \to (p \to r)$ |
|----------------|---|---|------------|-------------------|----------------------------|------------------|-------------------|--------------------------------|
| F              | F | F | F          | T                 | T                          | F                | T                 | T                              |
| $\overline{F}$ | F | T | F          | T                 | T                          | F                | T                 | T                              |
| $\overline{F}$ | T | F | T          | F                 | F                          | T                | T                 | T                              |
| $\overline{F}$ | T | T | T          | T                 | T                          | F                | T                 | T                              |
| T              | F | F | T          | T                 | T                          | F                | F                 | T                              |

| T | F | T | T | T | T | F | T | T |
|---|---|---|---|---|---|---|---|---|
| T | T | F | T | F | F | T | F | F |
| T | T | T | T | T | T | F | T | T |